76. (New) An order charge separation apparatus comprising, in series, a source of order charge, means for selection on the basis of order charge, and a collection means for order charge.

77. (New) An order charge separation apparatus according to claim 76 comprising a plurality of selection means operating as a cascade.

78. (New) An order charge separation apparatus according to claim 76 comprising an order charge output system including the collection means, thereby to effectuate order-charge type separation.

79. (New) An order charge separation apparatus as claimed in claim 76, wherein the selection means is adapted to operate in a manner other than by the ordering charge.

80. (New) An order charge separation apparatus as claimed in claim 76, wherein the selection means comprises a high resolution mass spectrometer.

81. (New) An order charge separation apparatus as claimed in claim 76, wherein the selection means is based upon the order charge.

82. (New) An order charge separation apparatus as claimed in claim 76, comprising at least one of ionization equipment, output interfaces, vacuum systems, optics, slits, baffles, and supporting equipment, arranged to assist in at least one of separate order charged matter from order-neutral matter, separate one order-charge type from another, and purify one order-charge type from another, until one or more order charge types have been separated from each other and purified.

83. (New) An order charge separation apparatus according to claim 76, wherein the source comprises a source of ionizing radiation.

84. (New) An order charge separation apparatus as claimed in claim 83, wherein the source comprises an alpha emitter.

85. (New) An order charge separation apparatus as claimed in claim 76, wherein the source is a form of matter, at least part of which carries the order charge.

86. (New) An order charge separation apparatus as claimed in claim 85, wherein the matter is helium from a reactor.

87. (New) An order charge separation apparatus as claimed in claim 76, wherein the source comprises a radiation-emitting device which produces order-charged matter so as to produce a supply of order charged matter, said order charged matter being supplied to the order-charge separation apparatus as its source of order-charged matter.

88. (New) An order charge separation apparatus as claimed in claim 87, wherein the radiation-emitting device comprises a nuclear reactor or accelerator.

89. (New) An order charge separation apparatus as claimed in claim 76, wherein the source is one of a radioactive halo, rock, crystal, and other material which contains order charge.

90. (New) An order charge separation apparatus as claimed in claim 76, wherein the source is one of a particle accelerator, nuclear accelerator, heavy ion accelerator, storage ring, and colliding beam machine, which by processes of particle interactions causes nuclei to fragment into fragments, at least some of which are order-charged.

91. (New) An order charge separation apparatus as claimed in claim 90, wherein the fragments produced are subjected to one or more of means for mass selection, momentum selection, direction selection, cooling, deceleration, acceleration, focusing into a beam, and ionization.

92. (New) An order charge separation apparatus as claimed in claim 76, wherein the source of order charge comprises free order charge which has subsequently been attached to matter.

93. (New) An order charge separation apparatus as claimed in claim 92, wherein the free order charge is attached by exposure to sunlight.

94. (New) An order charge separation apparatus as claimed in claim 76, wherein the source generates radiation that is subjected to at least one of means for passing the radiation through an

input interface, separating the radiation, collecting the radiation, concentrating the radiation, and ionizing the radiation,

and wherein the radiation is focused into a beam which is subjected to at least one of means for concentrating the beam, deflecting the beam, decelerating the beam, degrading the beam, and accelerating the beam.

95. (New) An order charge separation apparatus as claimed in claim 76, wherein the order-charged matter is subjected to at least one of means for passing the matter through an input interface, ionizing the matter, and wherein the matter is focused into a beam which is subjected to at least one of means for concentrating the beam, deflecting the beam, decelerating the beam, and accelerating the beam.

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96. (New) An order charge separation apparatus as claimed in claim 76, wherein the order-charged matters subjected to at least one of means for passing the matter through an input interface, ionizing the matter, converting the matter into a beam, focusing the matter, concentrating the matter, deflecting the matter, decelerating the matter, and accelerating the matter.

97. (New) An order charge separation apparatus as claimed in claim 90, wherein the fragments are subjected to at least one of means for passing the fragments through an input interface, ionizing the fragments, converting the fragments into a beam, focusing the fragments, concentrating the fragments, deflecting the fragments, decelerating the fragments, and accelerating the fragments.

98. (New) An order charge separation apparatus as claimed in claim 76, further comprising a plurality of sources or order charge arranged for use individually and for use simultaneously.

99. (New) An order charge separation apparatus as claimed in claim 98, further comprising means for switching from one source to another.

100. (New) An order charge separation apparatus as claimed in claim 76, comprising preparation means for preparing at least partially order-charged matter prior to introduction to the collection means.

101. (New) An order charge separation apparatus as claimed in claim 76, wherein the at least partially order-charged matter is introduced into one of the means for selection and the collection means.

102. (New) An order charge separation apparatus as claimed in claim 76, further comprising means for passing at least partially order-charged matter through a separator so as to separate order-charged from order-neutral states.

103. (New) An order charge separation apparatus as claimed in claim 102, wherein the separator comprises at least one of a mass spectrometer, a mass spectrometer-type apparatus, an accelerator-type mass-spectrometer, an accelerator, a cyclotron, a cyclotron-type device, a storage ring, a Penning trap, and a Smith-type spectrometer.

104. (New) An order charge separation apparatus as claimed in claim 103, wherein the separator achieves separation of different mass states corresponding to different order-charge states by one or more of electric fields, magnetic fields, time-of-flight, and slits.

105. (New) An order charge separation apparatus as claimed in claim 103, wherein the separator is based upon range, so that a predetermined amount of matter is used to separate order-charge or order-charged states respectively at the expense of order-neutral states.

106. (New) An order charge separation apparatus as claimed in claim 103, wherein the separator is a combination of range and a mass spectrometer so that partial separation is brought about by range, and partial separation is brought about by the mass spectrometer.

107. (New) An order charge separation apparatus as claimed in claim 76, further comprising a range attenuation element formed as part of an input interface to reduce the energy of the input particles either to no more than those that match a mass spectrometer, as part of an input interface which subsequently processes the order-charged states by one of acceleration and focusing so as to match input energy and phase space of the mass spectrometer and maximize the flux therethrough.

108. (New) An order charge separation apparatus as claimed in claim 102, wherein the separator is a type of spectrometer with one of an electric and magnetic field together with one of a velocity detector, velocity selector, time-of-flight device and energy loss device, which can separate different mass states.

109. (New) An order charge separation apparatus as claimed in claim 102, wherein the separator is based on a type of process which is one of mass sensitive, sensitive to nuclear magnetic moments, otherwise sensitive to order charge.

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110. (New) An order charge separation apparatus according to claim 109, in which the separator comprises one of a spectrometer, diffraction, resonance process, kinematic process, range, diffusion, and chemical reaction, which can be used to separate order-charged matter from order-neutral matter.

111. (New) An order charge separation apparatus as claimed in claim 102, wherein the separator is an order-charge separator having an active element, the active element being order-charge or an order-charge field, so that order-charge states passing through the separator are deflected by the order-charge or order field, respectively, whilst order-neutral states remain undeflected.

112. (New) An order charge separation apparatus as claimed in claim 76, further comprising at least one of a restriction, limitation, cut, slit aperture, barrier and optics to separate order-charge states from order-neutral states.

113. (New) An order charge separation apparatus as claimed in claim 112, further comprising means for adjusting one of the restriction, limitation, cut, slit aperture, barrier and optics.

114. (New) An order charge separation apparatus as claimed in claim 102, wherein the thickness of material traversed is sufficient to at least partially separate order-charge from order-neutral states.

115. (New) An order charge separation apparatus as claimed in claim 76, further comprising first means for separating the order charge based on range, and a second means for separating the order-charge.

116. (New) An order charge separation apparatus according to claim 115, wherein the range separation is used as at least part of an input interface to a subsequent order-charge separation.

117. (New) An order charge separation apparatus as claimed in claim 76, further comprising triggerable device actuatable to separate a small group of order charged particles or states from order-neutral states.

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118. (New) An order charge separation apparatus as claimed in claim 117, wherein the triggerable device comprises at least one of a mobile shutter, a pulsed field, an electric field, a magnetic field, a kicker magnet, a mechanical intervention device, an electronic device, an order-charged device, a time-of-flight system, a pulse height technique and an energy loss system.

119. (New) An order charge separation apparatus as claimed in claim 76, further comprising means for concentrating the order charge by selecting those states which carry the order charge.

120. (New) An order charge separation apparatus as claimed in claim 76, further comprising selection means for selecting order-charged matter on the basis of at least one of energy and directional properties as compared to those of order neutral matter.

121. (New) An order charge separation apparatus as claimed in claim 76, further comprising selection means for selecting order-charged fragments from one of a radioactive source and nuclear collisions on the basis of at least one of direction, velocity, momentum and particle-type differences.

122. (New) An order charge separation apparatus as claimed in claim 76, further comprising an output interface leading to the collection means.

123. (New) An order charge separation apparatus as claimed in claim 122, further comprising a stopping device included in one of an output interface and the collection means.

124. (New) An order charge separation apparatus as claimed in claim 76, wherein the order charge outputted by the source is in at least partial vacuum and is movable.

125. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device is one of a Faraday cup, metal plate, solid material, liquid material, and gaseous material, constructed for stopping order-charged materials.

126. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device absorbs order-charged materials for subsequent extraction.

127. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device comprises material which is removable after time spent absorbing order-charged material.

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128. (New) An order charge separation apparatus as claimed in claim 127, wherein the material comprises a metal plate.

129. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device includes extractable fluid.

130. (New) An order charge separation apparatus according to claim 129, further comprising means for circulating the fluid to facilitate extraction.

131. (New) An order charge separation apparatus as claimed in claim 123, further comprising means for causing the stopping device to re-emit order charged matter, thereby to enable collection.

132. (New) An order charge separation apparatus according to claim 131, wherein the re-emission is caused by heating.

133. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device is movable, and is arranged to first move to a separate area in a vacuum chamber where at least part of the stopping device is constructed to re-emit order charged matter.

134. (New) An order charge separation apparatus as claimed in claim 123, wherein the stopping device is a decelerating device, which enables the output from the separator to be collected.

135. (New) An order charge separation apparatus as claimed in claim 134, wherein the stopping device comprises at least one of electric and electromagnetic field generation means.

136. (New) An order charge separation apparatus as claimed in claim 76, further comprising an output system which provides one of an order-charge source, and an order-charge beam, which can be used as a beam of order charge.

137. (New) An order charge separation apparatus as claimed in claim 136, wherein the output system is in the form of an external beam arranged to pass through a window thereby to allow the order-charged matter to exit the system.

138. (New) An order charge separation apparatus as claimed in claim 137 comprising detection means associated with the output in order to facilitate at least one of measurement of the mass spectrum of the matter, determination of regions where ordered-charged states occur, adjustment of the system, operation of the system to select a state that carries a required order charge, separation of order-charged states from order-neutral states, adjustment of the system to optimize output, and monitoring of performance.

139. (New) An order charge separation apparatus as claimed in claim 76, further comprising means operating on the separated order charge for generating an order field, and means employing the order field to further separate order-charged states from order-neutral states.

140. (New) An order charge separation apparatus according to claim 76, further comprising means operating on the separated order charge for generating an order field, and means employing the order field to further separate order-charged states of different natures.

141. (New) An order charge separation apparatus as claimed in claim 76, wherein previously separated order charge is shaped and used as a deflecting mechanism in an order charge spectrometer.

142. (New) An order charge separation apparatus as claimed in claim 76, wherein previously separated order charge is shaped and combined with at least one of electric and magnetic fields to assist in the means for selection.